

AMENDMENTS TO THE CLAIMS

Please cancel claims 1, 2, 5, 6, and 8 without prejudice or disclaimer.

Please amend claims 11, 14-16, and 19, and add new claims 20-24 as follows.

1-10. (Cancelled)

11. (Currently Amended) A polymer-containing composition comprising a block polymer compound, ~~a solvent or a dispersion medium~~ water or an aqueous solvent, and a functional material,

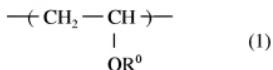
wherein the block polymer compound comprises block segments A, B, and C arranged in succession,

the block segment B is a hydrophilic block segment or a stimulus-responsive hydrophobic block segment.

the block segment C is most hydrophilic while the block segment A is most hydrophobic,

the block segment C has an ionic group or an acidic group, and

the block segment C is a repeating unit represented by the following general formula (1):



wherein R⁰ represents -X-(COOH), or -X-(COO-M); X represents a linear, branched or cyclic alkylene group with 1 to 20 carbon atoms, -(CH(R⁵)-CH(R⁶)-O)_p-(CH₂)_m-CH₃r-, -(CH₂)_m-(O)_n-(CH₂)_q-CH₃r- or a structure in which at least one of methylene groups therein is replaced by a carbonyl group or an aromatic ring structure; r represents 1 or 2; p represents an

integer from 1 to 18; m represents an integer from 0 to 35; n represents 1 or 0; q represents an integer from 0 to 17; M represents a monovalent or polyvalent cation; and R⁵ and R⁶, which may be the same or different, each independently represent an alkyl group.

12. (Previously Presented) The polymer-containing composition according to claim 11, wherein the functional material is included in the block polymer compound.

13. (Previously Presented) The polymer-containing composition according to claim 11, wherein the functional material is a colorant.

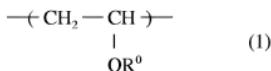
14. (Currently Amended) A method of increasing the viscosity of a polymer-containing composition which comprises:

a block polymer compound comprising block segments A, B, and C arranged in succession, ~~a solvent or a dispersion medium~~ water or an aqueous solvent, and a functional material, wherein

the block segment B is a hydrophilic block segment or a stimulus-responsive hydrophobic block segment.

the block segment C is most hydrophilic while the block segment A is most hydrophobic,
the block segment C has an ionic group or an acidic group, and

the block segment C is a repeating unit represented by the following general formula (1):



wherein R⁹ represents -X-(COOH), or -X-(COO-M); X represents a linear, branched or cyclic alkylene group with 1 to 20 carbon atoms, -(CH(R⁵)-CH(R⁶)-O)_p-(CH₂)_m-CH₃_r-, -(CH₂)_m-(O)_n-(CH₂)_q-CH₃_r- or a structure in which at least one of methylene groups therein is replaced by a carbonyl group or an aromatic ring structure; r represents 1 or 2; p represents an integer from 1 to 18; m represents an integer from 0 to 35; n represents 1 or 0; q represents an integer from 0 to 17; M represents a monovalent or polyvalent cation; and R⁵ and R⁶, which may be the same or different, each independently represent an alkyl group,

the method comprising a step of bringing the composition in contact with hydrogen ions or metal cations to increase the viscosity of the composition.

15. (Currently Amended) The viscosity increasing method according to claim 14, wherein a stimulus is given to the composition, thereby causing ~~a phase change of the block segment B to become hydrophilic.~~

16. (Currently Amended) An image forming method comprising a step of applying an ink onto a recording medium to conduct recording, wherein

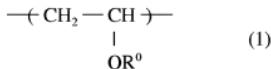
the ink is a polymer-containing composition including a block polymer compound comprising block segments A, B, and C arranged in succession, ~~a solvent or a dispersion medium water or an aqueous solvent~~, and a functional material,

the block segment B is a hydrophilic block segment or a stimulus-responsive hydrophobic block segment.

the block segment C is most hydrophilic while the block segment A is most hydrophobic,

the block segment C has an ionic group or an acidic group, and

the block segment C is a repeating unit represented by the following general formula (1):



wherein R⁰ represents -X-(COOH), or -X-(COO-M); X represents a linear, branched or cyclic alkylene group with 1 to 20 carbon atoms, -(CH(R⁵)-CH(R⁶)-O)_p-(CH₂)_m-CH_{3-r}-, -(CH₂)_m-(O)_n-(CH₂)_q-CH_{3-r}- or a structure in which at least one of methylene groups therein is replaced by a carbonyl group or an aromatic ring structure; r represents 1 or 2; p represents an integer from 1 to 18; m represents an integer from 0 to 35; n represents 1 or 0; q represents an integer from 0 to 17; M represents a monovalent or polyvalent cation; and R⁵ and R⁶, which may be the same or different, each independently represent an alkyl group.

17. (Previously Presented) The image forming method according to claim 16, wherein an energy is applied to the ink to eject the ink onto the recording medium.

18. (Previously Presented) The image forming method according to claim 16, further comprising a step of bringing the composition in contact with hydrogen ions or metal cations to increase the viscosity of the composition.

19. (Currently Amended) An image forming apparatus for conducting recording by applying an ink onto a recording medium, wherein

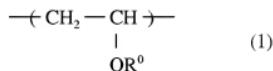
the ink is a polymer-containing composition including a block polymer compound comprising block segments A, B, and C arranged in succession, a solvent or a dispersion medium water or an aqueous solvent, and a functional material,

the block segment B is a hydrophilic block segment or a stimulus-responsive hydrophobic block segment,

the block segment C is most hydrophilic while the block segment A is most hydrophobic,

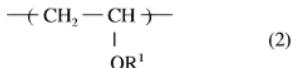
the block segment C has an ionic group or an acidic group, and

the block segment C is a repeating unit represented by the following general formula (1):



wherein R⁰ represents -X-(COOH), or -X-(COO-M); X represents a linear, branched or cyclic alkylene group with 1 to 20 carbon atoms, -(CH(R⁵)-CH(R⁶)-O)_p-(CH₂)_m-CH₃-, -(CH₂)_m-(O)_n-(CH₂)_q-CH₃, or a structure in which at least one of methylene groups therein is replaced by a carbonyl group or an aromatic ring structure; r represents 1 or 2; p represents an integer from 1 to 18; m represents an integer from 0 to 35; n represents 1 or 0; q represents an integer from 0 to 17; M represents a monovalent or polyvalent cation; and R⁵ and R⁶, which may be the same or different, each independently represent an alkyl group.

20. (New) The polymer-containing composition according to claim 11, wherein at least one of the block segments A and B is a repeating unit represented by the following general formula (2):



wherein R¹ is a group selected from the group consisting of a linear, branched or cyclic alkyl group with 1 to 18 carbon atoms, -Ph, -Pyr, -Ph-Ph, -Ph-Pyr, -(CH(R⁵)-CH(R⁶)-O)_p-R⁷ and -(CH₂)_m-(O)_n-R⁷, in which a hydrogen atom in an aromatic ring may be replaced by a linear or branched alkyl group with 1 to 4 carbon atoms and a carbon atom in an aromatic ring may be replaced by a nitrogen atom;

p represents an integer from 1 to 18; m represents an integer from 1 to 36; n represents 0 or 1;

R⁵ and R⁶ each independently represent a hydrogen atom or -CH₃;

R⁷ represents a hydrogen atom, a linear, branched or cyclic alkyl group with 1 to 18 carbon atoms, -Ph, -Pyr, -Ph-Ph, -Ph-Pyr, -CHO, -CH₂CHO, -CO-CH=CH₂, -CO-C(CH₃)=CH₂, or -CH₂COOR⁸, in which, in case R⁷ is other than a hydrogen atom, a hydrogen atom bonded to a carbon atom in R⁷ may be replaced by a linear or branched alkyl group with 1 to 4 carbon atoms, -F, -Cl or -Br while a carbon atom in an aromatic ring may be replaced by a nitrogen atom; R⁸ represents a hydrogen atom or an alkyl group with 1 to 5 carbon atoms; Ph represents a phenyl group; and Pyr represents a pyridyl group.

21. (New) A method of increasing the viscosity of a polymer-containing composition which comprises:

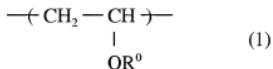
a block polymer compound comprising block segments A, B, and C arranged in succession, water or an aqueous solvent, and a functional material, wherein

the block segment B is a hydrophilic block segment or a stimulus-responsive hydrophobic block segment,

the block segment C is most hydrophilic while the block segment A is most hydrophobic,

the block segment C has an ionic group or an acidic group, and

the block segment C is a repeating unit represented by the following general formula (1):



wherein R⁰ represents -X-(COOH), or -X-(COO-M); X represents a linear, branched or cyclic alkylene group with 1 to 20 carbon atoms, -(CH(R⁵)-CH(R⁶)-O)_p-(CH₂)_m-CH₃-r-, -(CH₂)_m-(O)_n-(CH₂)_q-CH₃-r or a structure in which at least one of methylene groups therein is replaced by a carbonyl group or an aromatic ring structure; r represents 1 or 2; p represents an integer from 1 to 18; m represents an integer from 0 to 35; n represents 1 or 0; q represents an integer from 0 to 17; M represents a monovalent or polyvalent cation; and R⁵ and R⁶, which may be the same or different, each independently represent an alkyl group.

the method comprising a step of giving a stimulus to the composition to cause the block segment B to become hydrophilic.

22. (New) The viscosity increasing method according to claim 21, wherein the stimulus is at least one of a change in temperature, an exposure to an electromagnetic wave, a pH change in the composition, and a change in the concentration of the composition.

23. (New) The image forming method according to claim 16, wherein the block segment B is caused to become hydrophilic by giving a stimulus to the composition.

24. (New) The image forming method according to claim 23, wherein the stimulus is at least one of a change in temperature, an exposure to an electromagnetic wave, a pH change in the composition, and a change in the concentration of the composition.